system applied to the magneto-optical recording medium as described above, in order to detect, upon reproduction, signals recorded as multi-valued signals, the multi-valued signals have been distinguished by slicing, at a plurality of levels, signals detected from the magneto-optical recording medium. Accordingly, it has been impossible to obtain a large difference in signal amplitude corresponding to each of multi-valued states, and it has been difficult to clearly distinguish two states with a close difference in signal amplitude therebetween. For this reason, a problem arises in that the S/N ratio is low with respect to reproduced multi-valued signals. Therefore, it has been demanded to realize a reproduction technique for obtaining reproduction signals at a high S/N ratio from a certain magneto-optical recording medium subjected to high density recording.

As for magneto-optical recording media each having a plurality of magnetic layers, a recording medium, in which information can be recorded and reproduced independently on each of magnetic layers, may serve as an extremely effective recording medium when various types of information are recorded on a single recording medium in a correlated manner, or when they are simultaneously recorded and reproduced in parallel together with a plurality pieces of channel information.

JP-A-4305841 discloses a method for reproducing a multilevel information which has been recorded by illuminating with a recording light a magneto-optical recording medium, which has a magneto-optical layer wherein a magnetization direction may be changed by means of a magnetic field and heat with the illumination of the light, and an enhanced layer wherein a refractive index with respect to a reproducing light may be changed depending on a heating condition with the illumination light, to independently vary the magnetization direction of the magneto-optical recording layer and the refractive index of the enhanced layer. In the method, the information is reproduced by illuminating the magneto-optical recording medium, onto which the multilevel information has been recorded, with two reproducing lights having different wavelength in order to independently detect the intensity of the respective lights. The enhanced layer must have a characteristic that the refractive index with respect to an illumination light used for reproduction is changed depending on a heating condition based on illumination of the light.

JP-A-7147027 discloses a method for reproducing a multilevel information from a magneto-optical recording medium having a first magnetic recording layer and a second magnetic recording layer by using two laser beams with length $\lambda 1$, $\lambda 2$. The magneto-optical recording medium needs

to use a spacer layer for transmitting the laser beam having the wavelength λ2 and reflecting the laser beam having the wavelength λ1.

Disclosure of Invention

The present invention has been made in order to solve the problems caused by the conventional techniques as described above, an object of which is to provide a novel method for recording and reproduction on a magneto-optical recording medium in which information recorded by multi-valued recording can be reproduced at a high S/N ratio.

Another object of the present invention is to provide a novel method for recording and reproduction on a magneto-optical recording medium having a plurality of magnetic layers in which data can be independently recorded (recorded in multi-layers) or reproduced on each of magnetic layers of the magneto-optical recording medium.

Still another object of the present invention is to provide a magneto-optical recording medium which is used for the method for recording and reproduction on the magneto-optical recording medium according to the present invention, on which reproduction signals can be reproduced at a high S/N ratio from the magneto-optical recording medium subjected to multi-valued recording.

Still another object of the present invention is to provide a novel magneto-optical recording medium which is

Disclosure of Invention

The present invention has been made in order to solve the problems caused by the conventional techniques as described above, an object of which is to provide a novel method for recording and reproduction on a magneto-optical recording medium in which information recorded by multi-valued recording can be reproduced at a high S/N ratio.

Another object of the present invention is to provide a novel method for recording and reproduction on a magneto-optical recording medium having a plurality of magnetic layers in which data can be independently recorded (recorded in multi-layers) or reproduced on each of magnetic layers of the magneto-optical recording medium.

Still another object of the present invention is to provide a magneto-optical recording medium which is used for the method for recording and reproduction on the magneto-optical recording medium according to the present invention, on which reproduction signals can be reproduced at a high S/N ratio from the magneto-optical recording medium subjected to multi-valued recording.

Still another object of the present invention is to provide a novel magneto-optical recording medium which is used for the method for recording and reproduction on the magneto-optical recording medium according to the present invention, having a plurality of magneto-optical recording layers, on which data can be independently recorded and